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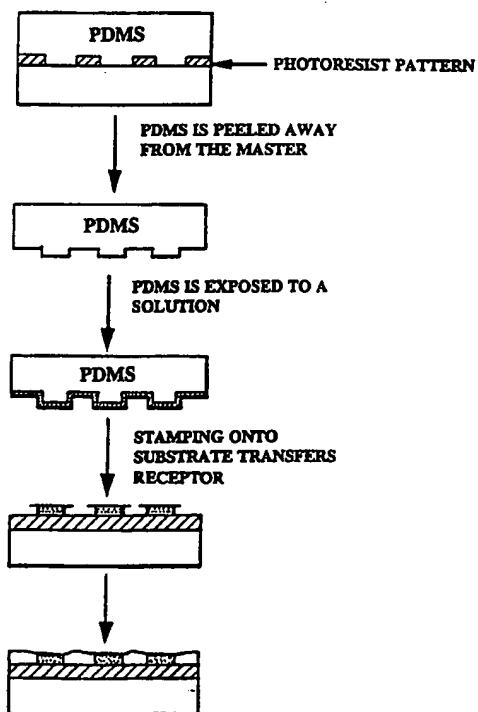
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(71) Applicant: KIMBERLY-CLARK WORLDWIDE, INC. [US/US]; 401 North Lake Street, Neenah, WI 54956 (US).	
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(74) Agents: GREEN, Theodore, M. et al.; Jones & Askew, LLP, 2400 Monarch Tower, 3424 Peachtree Road, N.E., Atlanta, GA 30326 (US).	
	(88) Date of publication of the international search report: 17 August 2000 (17.08.00)

(54) Title: PATTERNED BINDING OF FUNCTIONALIZED MICROSPHERES FOR OPTICAL DIFFRACTION-BASED BIOSENSORS

(57) Abstract

The present invention provides an inexpensive and sensitive system and method for detecting analytes present in a medium. The system comprises a diffraction enhancing element, such as functionalized microspheres, which are modified such that they are capable of binding with a target analyte. Additionally, the system comprises a polymer film, which may include a metal coating, upon which is printed a specific, predetermined pattern of analyte-specific receptors. Upon attachment of a target analyte to select areas of the polymer film, either directly or with the diffraction enhancing element, diffraction of transmitted and/or reflected light occurs via the physical dimensions and defined, precise placement of the analyte. A diffraction image is produced which can be easily seen with the eye or, optionally, with a sensing device.



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INTERNATIONAL SEARCH REPORT

Int. Application No

PCT/US 99/27671

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 G01N33/553 B41M3/00 G01N21/47

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
 IPC 7 G01N B41M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 27417 A (KIMBERLY CLARK CO) 25 June 1998 (1998-06-25) page 9, line 20 -page 10, line 10; claims 1-49; examples 1-8	23-36, 41
Y	WO 94 15193 A (SIENNA BIOTECH INC) 7 July 1994 (1994-07-07) page 21, line 17-21	1-22, 37-40
Y	US 5 599 668 A (STIMPSON DONALD I ET AL) 4 February 1997 (1997-02-04) column 15, line 18-57 column 23, line 29-39	19-22, 37-40
Y	WO 96 29629 A (HARVARD COLLEGE) 26 September 1996 (1996-09-26) page 24, line 26 -page 25, line 13	1-22
		-/-



Further documents are listed in the continuation of box C.



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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	MRKSICH M ET AL: "PATTERNING SELF-ASSEMBLED MONOLAYERS USING MICROCONTACT PRINTING: A NEW TECHNOLOGY FOR BIOSENSORS" TIBTECH, GB, CAMBRIDGE, vol. 13, 1 June 1995 (1995-06-01), pages 228-235, XP002060826 the whole document	1-41

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
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Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 9827417	A 25-06-1998	US 5922550	A	13-07-1999
		AU 5615698	A	15-07-1998
		CN 1246179	A	01-03-2000
		EP 0946865	A	06-10-1999
WO 9415193	A 07-07-1994	AU 670489	B	18-07-1996
		AU 5873494	A	19-07-1994
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		CN 1092866	A	28-09-1994
		EP 0676045	A	11-10-1995
		JP 8505231	T	04-06-1996
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US 5599668	A 04-02-1997	AU 3636295	A	09-04-1996
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		JP 10506190	T	16-06-1998
		WO 9609532	A	28-03-1996
		US 5843651	A	01-12-1998
WO 9629629	A 26-09-1996	EP 0812434	A	17-12-1997
		US 5900160	A	04-05-1999

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<pre> graph TD Master["PDMS PHOTORESIST PATTERN"] --> Peel["PDMS IS PEELED AWAY FROM THE MASTER"] Peel --> Solution["PDMS IS EXPOSED TO A SOLUTION"] Solution --> Stamp["STAMPING ONTO SUBSTRATE TRANSFERS RECEPTOR"] Stamp --> Substrate["SUBSTRATE WITH PATTERNED BINDING OF FUNCTIONALIZED MICROSPHERES"] </pre>			

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